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HYDROLOGICAL MEMORANDA No.25

FREQUENCY MAPS OF DAILY RAINFALL

Each of these maps shows approximately the pattern of the frequency with which a specified 24-hour total of rainfall is attained (i.e., equalled or surpassed) at any one spot, the 24 hours being always reckoned from a fixed time of day - conventionally 0900 GMT.

The plotted figures, which refer to the standard 35-year period from 1916 to 1950, are from M.O. Hydrological Memoranda; and the isopleths have been drawn at convenient multiples of 35 so as to show the frequencies per annum. Some guidance in the course of the drawing has come from the already known 1916-1950 average annual total rainfall pattern that is based on figures for the same stations and from others as listed in the same Hydrological Memoranda.

These maps are interesting, incidentally, from the viewpoint of the well-known Bilham formula which purports to give for England and Wales the general long-term frequencies of attaining specified rainfalls in specified numbers of hours without restriction on time of day. For a rainfall to attain 1.0 inch in 24 hours, in particular, the Bilham 35-year frequency in round figures would be 80 (this being in good accord with the mean of the observed frequencies at ten stations where autographic records have been maintained and suitably tabulated for a suitably long time); and the map of frequencies of daily rainfalls of at least 1.0 inch is seen to be broadly consistent with this, the frequencies over most of England actually being somewhat lower than 80 as is naturally to be expected because of the 24 hours being tied to a fixed time of day.

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M.O.3.

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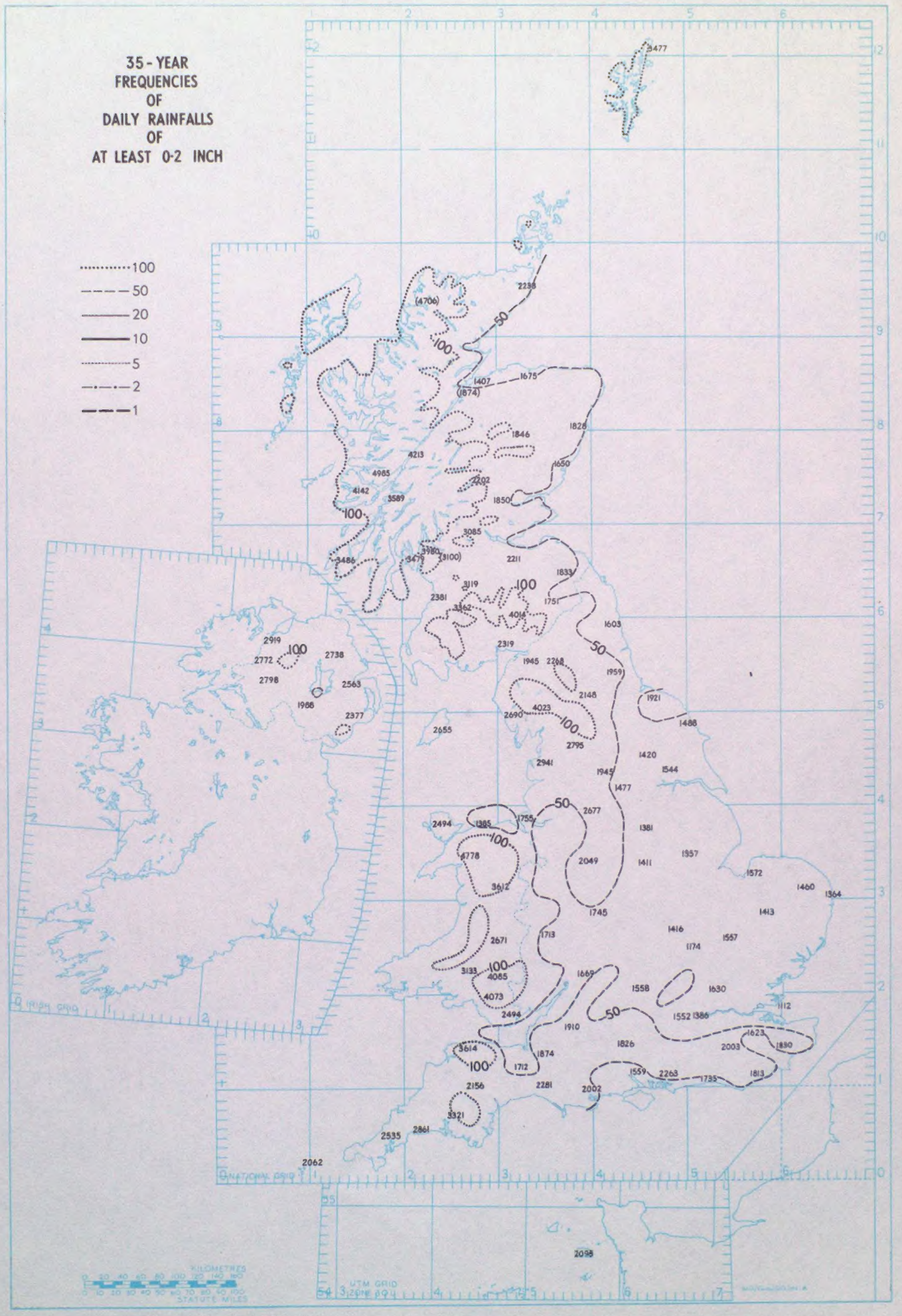
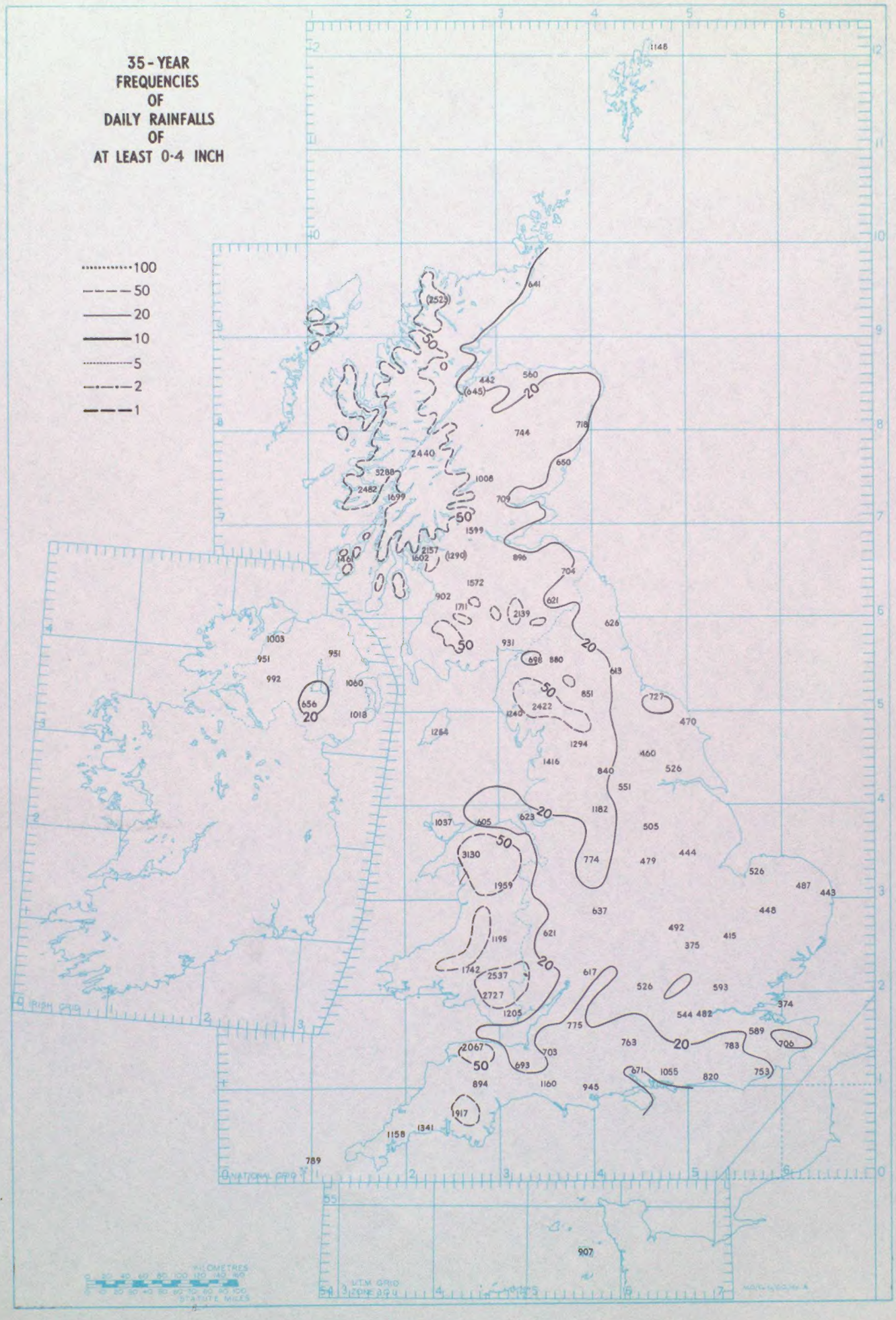
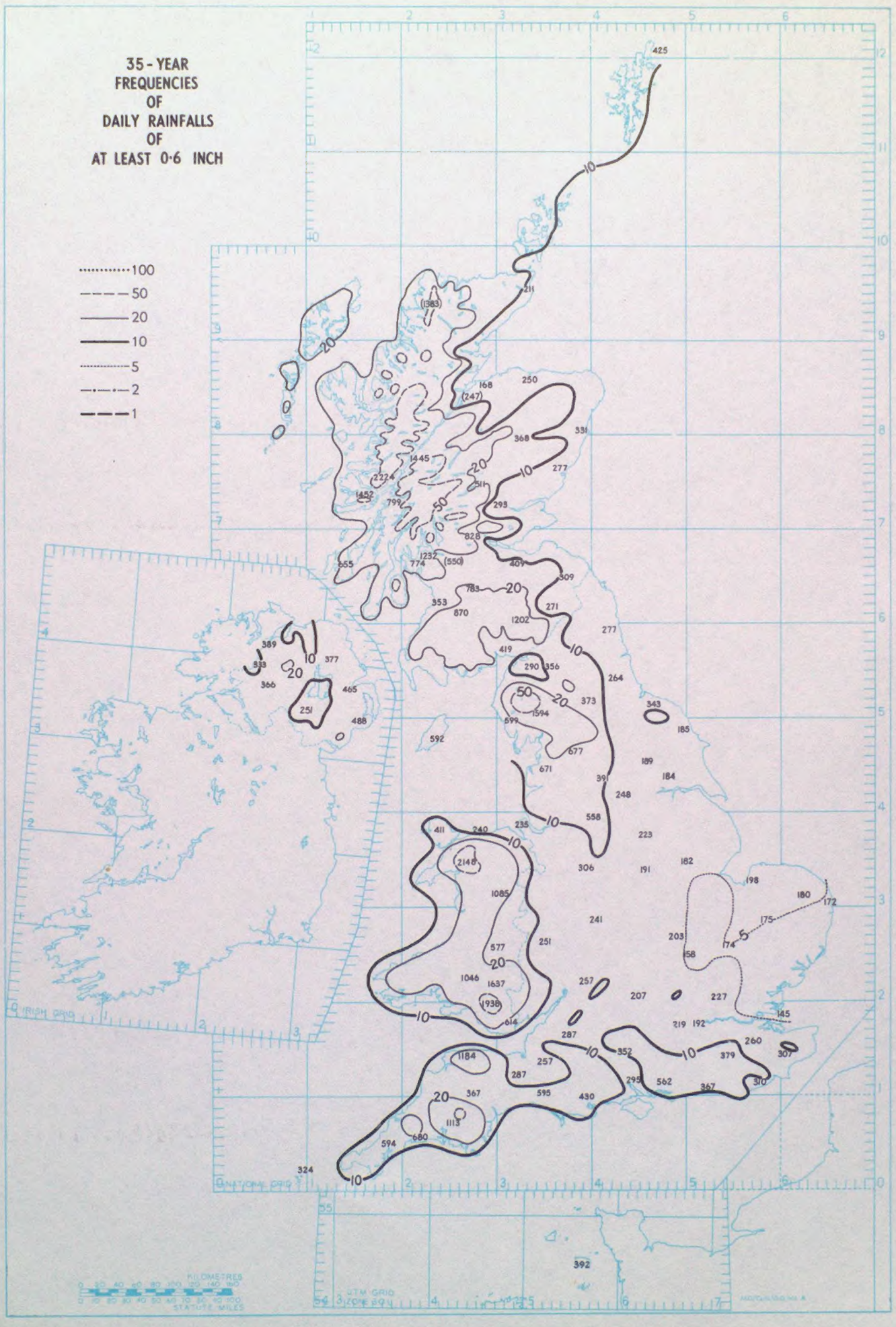
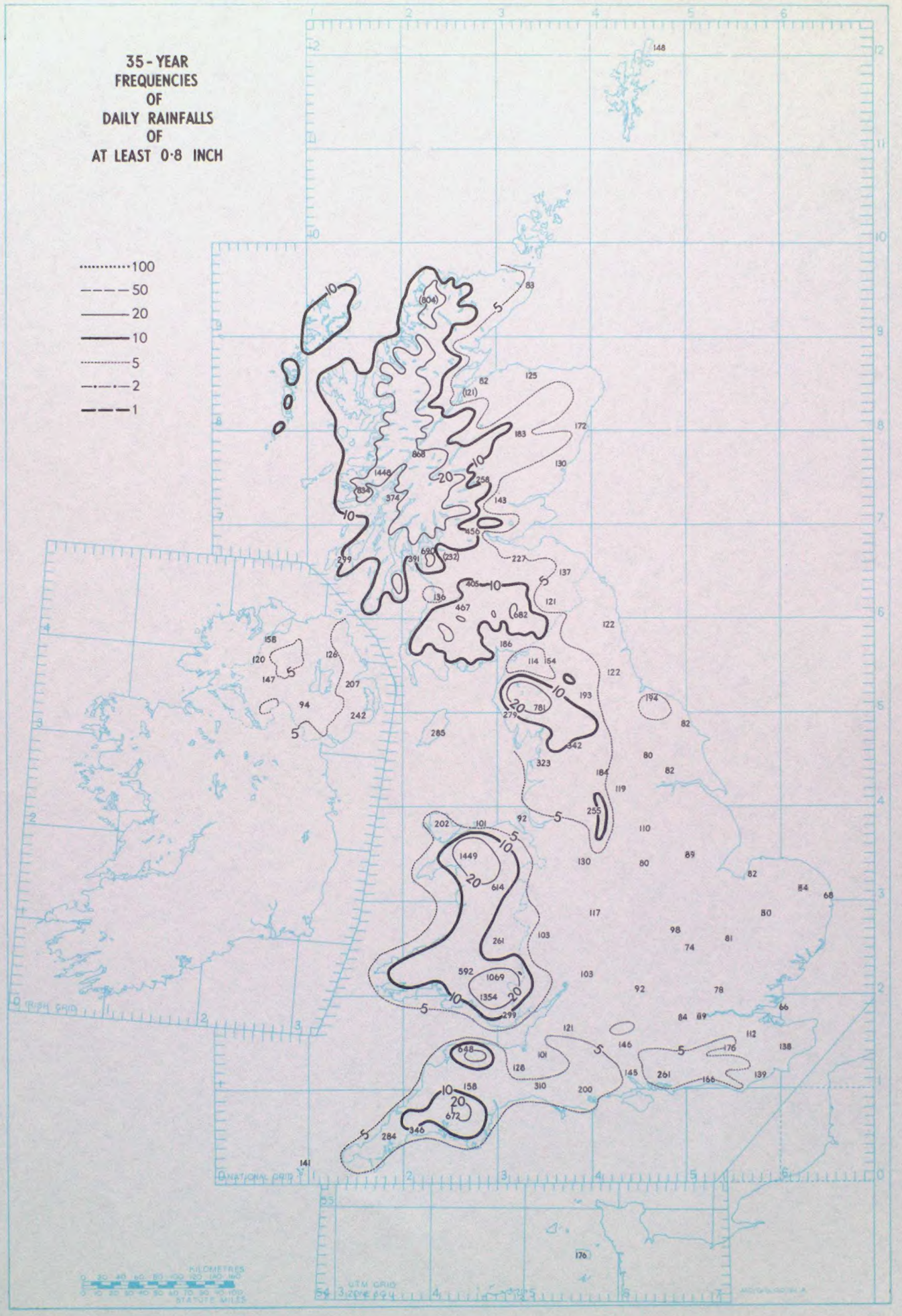
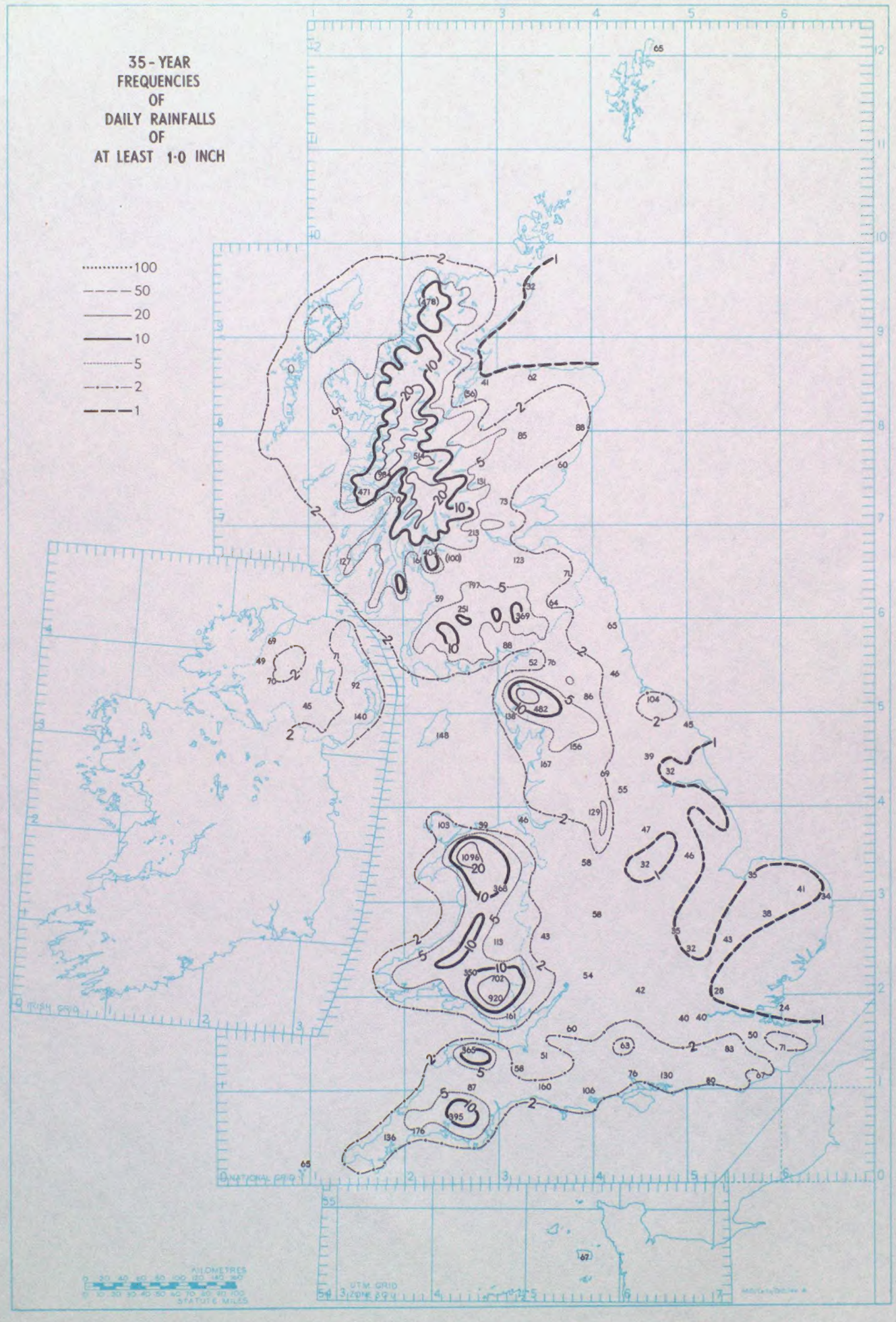
STATIONS USED FOR 35-YEAR FREQUENCIES OF DAILY RAINFALL


35-YEAR
FREQUENCIES
OF
DAILY RAINFALLS
OF
AT LEAST 0·2 INCH
100
50
20
10
5
2
1
IRISH GRID
NATIONAL GRID
UTM GRID
ZONE 30 U
KILOMETRES
STATUTE MILES


35 - YEAR
FREQUENCIES
OF
DAILY RAINFALLS
OF
AT LEAST 0·4 INCH
100
50
20
10
5
2
1
IRISH GRID
NATIONAL GRID
U.T.M. GRID
ZONE 30 U
KILOMETRES
STATUTE MILES


35 - YEAR
FREQUENCIES
OF
DAILY RAINFALLS
OF
AT LEAST 0·6 INCH
100
50
20
10
5
2
1
IRISH GRID
NATIONAL GRID
UTM GRID
ZONE 29
KILOMETRES
STATUTE MILES


35 - YEAR
FREQUENCIES
OF
DAILY RAINFALLS
OF
AT LEAST 0·8 INCH
100
50
20
10
5
2
1
IRISH GRID
NATIONAL GRID
KILOMETRES
STATUTE MILES
UTM GRID
ZONE 29


35 - YEAR
FREQUENCIES
OF
DAILY RAINFALLS
OF
AT LEAST 1·0 INCH
100
50
20
10
5
2
1
IRISH GRID
NATIONAL GRID
KILOMETRES
STATUTE MILES
UTM GRID
ZONE 29N